



**[6450-01-P]**

**DEPARTMENT OF ENERGY**

**10 CFR Parts 429 and 431**

**[Docket No. EERE-2015-BT-TP-0015]**

**RIN: 1904-AD54**

**Energy Conservation Program: Test Procedures for Small, Large, and Very Large Air-Cooled Commercial Package Air Conditioning and Heating Equipment**

**AGENCY:** Office of Energy Efficiency and Renewable Energy, Department of Energy.

**ACTION:** Notice of proposed rulemaking.

**SUMMARY:** In this notice of proposed rulemaking (NOPR), the U.S. Department of Energy (DOE) proposes to reaffirm that the currently prescribed test procedure must be used when measuring the energy efficiency ratio, integrated energy efficiency ratio, and coefficient of performance for small, large, and very large air-cooled commercial unitary air conditioners (CUAC) and commercial unitary heat pumps (CUHP). With this test procedure rulemaking, DOE fulfills its obligation under EPCA to review its test procedures for covered equipment at least once every seven years and either amend the applicable test procedures or publish a determination in the Federal Register not to amend them. The proposed amendments would limit

the incorporation by reference of the industry test procedure AHRI Standard 340/360-2007, “2007 Standard for Performance Rating of Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment” to certain sections and addenda; specify requirements for indoor airflow tolerance and adjustment to meet other rating conditions; clarify requirements for condenser head pressure controls; clarify units of measurement for airflow; and establish a tolerance on part-load rating points. DOE also proposes to amend the certification, compliance, and enforcement provisions for CUACs and CUHPs to specify additional reporting requirements for indoor airflow and add enforcement provisions for verifying the rated cooling capacity, as the rated cooling capacity determines which class of equipment the product belongs to and also determines certain testing conditions.

**DATES:** DOE will hold a public meeting on this proposed test procedure if one is requested by

**[INSERT DATE 7 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL**

**REGISTER]** If a public meeting is requested, DOE will announce its date and location on the DOE website and via email. The meeting will also be broadcast as a webinar. DOE will accept comments, data, and information regarding this notice of proposed rulemaking (NOPR) before and after any public meeting, but no later than **[INSERT DATE 30 DAYS AFTER DATE OF**

**PUBLICATION IN THE FEDERAL REGISTER]**. See section V, “Public Participation,” for details.

**ADDRESSES:** Any comments submitted must identify the NOPR for Test Procedures for Small, Large, and Very Large Air-Cooled Commercial Package Air Conditioning and Heating Equipment, and provide docket number EERE-2015–BT–TP–0015 and/or regulatory

information number (RIN) number 1904-AD54. Comments may be submitted using any of the following methods:

1. Federal eRulemaking Portal: [www.regulations.gov](http://www.regulations.gov). Follow the instructions for submitting comments.
2. E-mail: [CommPkgACHeat2015TP0015@ee.doe.gov](mailto:CommPkgACHeat2015TP0015@ee.doe.gov) Include the docket number EERE-2015-BT-TP-0015 and/or RIN 1904-AD54 in the subject line of the message.
3. Mail: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, Mailstop EE-2J, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. If possible, please submit all items on a CD. It is not necessary to include printed copies.
4. Hand Delivery/Courier: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, 950 L'Enfant Plaza, SW., Suite 600, Washington, DC, 20024. Telephone: (202) 586-2945. If possible, please submit all items on a CD. It is not necessary to include printed copies.

For detailed instructions on submitting comments and additional information on the rulemaking process, see section V, “Public Participation,” near the end of this document.

Docket: The docket, which includes Federal Register notices, public meeting attendee lists and transcripts, comments, and other supporting documents/materials, is available for review at [regulations.gov](http://regulations.gov). All documents in the docket are listed in the [regulations.gov](http://regulations.gov) index. However, some documents listed in the index, such as those containing information that is exempt from public disclosure, may not be publicly available.

A link to the docket web page can be found at:

[\[www.regulations.gov/#!docketDetail;D=EERE-2015-BT-TP-0015\]](http://www.regulations.gov/#!docketDetail;D=EERE-2015-BT-TP-0015). This web page contains a link to the docket for this notice on the regulations.gov site. The regulations.gov web page contains instructions on how to access all documents, including public comments, in the docket. See section V for information on how to submit comments through regulations.gov.

For further information on how to submit a comment, review other public comments and the docket, or participate in the public meeting, contact Ms. Brenda Edwards at (202) 586-2945 or by email: [Brenda.Edwards@ee.doe.gov](mailto:Brenda.Edwards@ee.doe.gov).

#### **FOR FURTHER INFORMATION CONTACT:**

Ashley Armstrong, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Program, EE-2J, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. Telephone: (202) 586-9590, or email [Ashley.Armstrong@ee.doe.gov](mailto:Ashley.Armstrong@ee.doe.gov).

For legal issues, please contact Mr. Michael Kido, U.S. Department of Energy, Office of the General Counsel, GC-33, 1000 Independence Avenue SW., Washington, DC 20585-0121. Telephone: (202) 586-8145. Email: *Michael.Kido@hq.doe.gov*.

#### **SUPPLEMENTARY INFORMATION:**

DOE intends to incorporate by reference the following industry standard into part 429:

ANSI/AHRI Standard 340/360-2007, “*2007 Standard for Performance Rating of Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment*,” approved by ANSI on October 27, 2011 and updated by addendum 1 in December 2010 and addendum 2 in June 2011 (AHRI 340/360-2007)

ANSI/AHRI Standard 340/360-2007 is available at the Air-Conditioning, Heating, and Refrigeration Institute, 2111 Wilson Blvd., Suite 500, Arlington, VA 22201, (703) 524-8800, or go to: <http://www.ahrinet.org>.

## **Table of Contents**

- I. Authority and Background
- II. Summary of the Notice of Proposed Rulemaking
- III. Discussion
  - A. Amendments to the Current DOE Test Procedure
    - 1. Sections of ANSI/AHRI 340/360-2007 Incorporated by Reference
    - 2. Indoor Airflow Adjustment and Reporting
    - 3. Condenser Head Pressure Controls
    - 4. Unit of Measurement for Airflow
    - 5. Tolerance on Percent Load for IEER Part-Load Tests
  - B. Certification and Enforcement Issues
    - 1. Measuring Cooling Capacity for Purposes of Certification, Assessment, and Enforcement
    - 2. Compliance Dates of the Test Procedure Amendments
- IV. Procedural Issues and Regulatory Review
  - A. Review Under Executive Order 12866
  - B. Review Under the Regulatory Flexibility Act
  - C. Review Under the Paperwork Reduction Act of 1995
  - D. Review Under the National Environmental Policy Act of 1969
  - E. Review Under Executive Order 13132
  - F. Review Under Executive Order 12988
  - G. Review Under the Unfunded Mandates Reform Act of 1995
  - H. Review Under the Treasury and General Government Appropriations Act, 1999
  - I. Review Under Executive Order 12630
  - J. Review Under Treasury and General Government Appropriations Act, 2001
  - K. Review Under Executive Order 13211
  - L. Review Under Section 32 of the Federal Energy Administration Act of 1974

- M. Description of Material Incorporated by Reference
- V. Public Participation
  - A. Submission of Comments
  - B. Issues on Which DOE Seeks Comment
- VI. Approval of the Office of the Secretary

## **I. Authority and Background**

Title III of the Energy Policy and Conservation Act of 1975 (42 U.S.C. 6291, et seq.; “EPCA” or, “the Act”) sets forth a variety of provisions designed to improve energy efficiency. (All references to EPCA in this document refer to the statute as amended through the Energy Efficiency Improvement Act of 2015, Pub. L. 114-11 (Apr. 30, 2015).) Part C of Title III, which for editorial reasons was redesignated as Part A-1 upon incorporation into the U.S. Code (42 U.S.C. 6311-6317, as codified), establishes the Energy Conservation Program for Certain Commercial and Industrial Equipment. This equipment includes small, large, and very large air-cooled commercial package air conditioning and heating equipment – which includes commercial unitary air conditioners (CUACs) and commercial unitary heat pumps (CUHPs), the subjects of today’s notice. (42 U.S.C. 6311(1)(B)-(D))

Under EPCA, the energy conservation program consists essentially of four parts: (1) testing, (2) labeling, (3) Federal energy conservation standards, and (4) certification and enforcement procedures. The testing requirements consist of test procedures that manufacturers of covered equipment must use as the basis for (1) certifying to DOE that their equipment complies with applicable energy conservation standards adopted under EPCA, and (2) making representations about the efficiency of the equipment. Similarly, DOE must use these test procedures to determine whether the equipment complies with any relevant standards promulgated under EPCA.

### General Test Procedure Rulemaking Process

In 42 U.S.C. 6314, EPCA sets forth the general criteria and procedures DOE must follow when prescribing or amending test procedures for covered equipment. EPCA provides in relevant part that any test procedures prescribed or amended under this section must be reasonably designed to produce test results which measure energy efficiency, energy use or estimated annual operating cost of a covered product during a representative average use cycle or period of use and must not be unduly burdensome to conduct. (42 U.S.C. 6314(a)(2)) In addition, if DOE determines that a test procedure amendment is warranted, it must publish proposed test procedures and offer the public an opportunity to present oral and written comments on them. (42 U.S.C. 6314(b))

DOE is also required by EPCA to conduct an evaluation of test procedures at least every seven years for each class of covered equipment (including CUACs and CUHPs) to determine if an amended test procedure would more accurately or fully comply with the requirement to be reasonably designed to produce test results that reflect the energy efficiency, energy use, and operating costs during a representative average use cycle. DOE must either prescribe amended test procedures or publish a notice in the Federal Register regarding its determination not to amend test procedures. (42 U.S.C. 6314(a)(1)-(2))

### Background

DOE's test procedure for CUACs and CUHPs is codified at Title 10 of the Code of Federal Regulations (CFR), section 431.96. The current regulations require that manufacturers

use ANSI/AHRI Standard 340/360-2007, “2007 Standard for Performance Rating of Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment” (henceforth referred to as ANSI/AHRI 340/360-2007) when measuring the efficiency of a given CUAC or CUHP and certifying that equipment as compliant with the applicable standard.<sup>1</sup> 77 FR 28928, 28990 (May 16, 2012).

On February 1, 2013, DOE published a request for information and notice of document availability regarding energy conservation standards for CUACs and CUHPs. 78 FR 7296. The request for information solicited information from the public to help DOE determine whether national standards more stringent than those that are currently in place would result in a significant amount of additional energy savings and whether those national standards would be technologically feasible and economically justified. DOE also sought information from the public on the merits of adopting the integrated energy efficiency ratio (IEER) as the energy efficiency descriptor for small, large, and very large air-cooled commercial air conditioners and heat pumps. Currently, manufacturers must measure the energy efficiency of their equipment using the energy efficiency ratio (EER), which provides a measurement of the full-load efficiency of a given unit. The procedure to follow when measuring and calculating that value, like the proposed IEER metric, is found in ANSI/ASHRAE 340/360-2007. See ANSI/ASHRAE 340/360-2007 at sec. 6. Comments received on the topic of IEER are discussed in a related energy conservation standards NOPR, which was published in September 2014. 79 FR 58948 (Sept. 30, 2014).

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<sup>1</sup> DOE notes that for purposes of this notice, all references to ANSI/ASHRAE 340/360-2007 include Addenda 1 and 2 to this industry-based standard.





Subsequently, on April 1, 2015, DOE issued a notice of intent to establish the Commercial Package Air Conditioners and Heat Pumps and Commercial Warm Air Furnaces Working Group to negotiate either a notice of proposed rulemaking (NOPR) or final rule for energy conservation standards for this equipment. 80 FR 17363. This Working Group was established under the Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC) in accordance with the Federal Advisory Committee Act and the Negotiated Rulemaking Act. See 5 U.S.C. Appendix – Federal Advisory Committee Act and 5 U.S.C. 561-570a. The Working Group, which consisted of 17 members, including one member from ASRAC and one DOE representative, met six times (five times in-person and once by teleconference). The meetings were held on April 28, May 11-12, May 20-21, June 1-2, June 9-10, and June 15, 2015. The Working Group successfully reached consensus on energy conservation standards for commercial package air conditioners and heat pumps and commercial warm air furnaces, which included the Working Group’s recommendations to ASRAC on the energy conservation standards. The group also chose to provide test procedure and metric-related recommendations to the committee. ASRAC voted unanimously to approve the Working Group’s recommendations on June 17, 2015. Consistent with those recommendations, DOE proposes to amend the test procedure and associated certification regulations for small, large, and very large air-cooled commercial package air conditioning and heating equipment to implement the Working Group’s recommendations. Participants in the Working Group consisted of the following entities aside from DOE:

<b>Participant</b>	<b>Acronym, Abbreviation</b>	<b>Affiliation</b>
Air Conditioning Contractors of America	ACCA	Contractor/Installer Group
Air-Conditioning, Heating, and Refrigeration Institute	AHRI	HVAC Manufacturers Group
Appliance Standards Awareness Project	ASAP	Energy Efficiency Advocacy Group
Emerson Climate Technologies	Emerson	Manufacturer
Goodman Manufacturing	Goodman	Manufacturer

Lennox International	Lennox	Manufacturer
Mitsubishi Electric	Mitsubishi	Manufacturer
Natural Resources Defense Council	NRDC	Energy Efficiency Advocacy Group
Northwest Energy Efficiency Alliance	NEEA	Energy Efficiency Advocacy Group
Pacific Gas & Electric Company, San Diego Gas & Electric Company, Southern California Edison, and Southern California Gas Company	Cal. IOUs	Investor-Owned Utilities
Rheem Manufacturing Company	Rheem	Manufacturer
Sheet Metal and Air Conditioning Contractors National Association, Inc.	SMACCNA	Contractor/Installer Group
Trane/Ingersoll Rand	Trane	Manufacturer
United Technologies Corporation (Carrier)	Carrier	Manufacturer
Underwriters Laboratories	UL	Test Lab

DOE considers the activity associated with this rulemaking sufficient to satisfy the statutory requirement that DOE review its test procedures for all covered equipment, including CUACs and CUHPs, at least once every seven years and either amend the applicable test procedures or publish a determination in the Federal Register not to amend them. (42 U.S.C. 6314(a)(1))

## **II. Summary of the Notice of Proposed Rulemaking**

DOE is proposing several amendments to its regulations related to the test procedures prescribed for CUACs and CUHPs in 10 CFR part 431, Subpart F. First, DOE proposes to amend the current DOE test procedure to incorporate only certain sections of ANSI/AHRI 340/360-2007 rather than in its entirety. Second, DOE proposes amendments to incorporate a tolerance on the indoor airflow rate. In particular, during full load testing in cooling mode, the indoor airflow rate would be required to remain within +/- 5 percent of the rated full-load indoor airflow. The unit and/or test facility must be adjusted to maintain this tolerance for indoor airflow rate while ensuring that the ESP remains within the tolerance required by the test procedure. For any other condition using full-load airflow (e.g. full-load heating for a heat

pump), the +/- 5 percent tolerance would also apply and, if necessary, a test facility adjustment would be made in order to maintain air flow within the required tolerance, but the unit itself may not be adjusted. Third, DOE proposes to clarify that condenser head pressure controls, if included with the unit, must be active during testing. Fourth, DOE proposes to clarify that reference to cubic feet per minute (CFM) in ANSI/AHRI 340/360-2007 must be interpreted as referring to standard CFM (SCFM). Fifth, DOE proposes that when conducting part-load testing to measure IEER, the difference between the percent load calculated for a part-load test point and its target value may be as much as three percent without requiring interpolation or application of the cyclic degradation factor specified in ANSI/AHRI 340/360-2007. Sixth, DOE proposes to amend the certification, compliance, and enforcement provisions for CUACs and CUHPs. These amendments include adding enforcement provisions for verifying the cooling capacity, as the cooling capacity determines which class of equipment the product belongs to and also determines certain testing conditions. Lastly, DOE has proposed a definition of integrated energy efficiency ratio (IEER).

DOE believes that none of these clarifications or amendments would result in any changes to the energy efficiency of current equipment. Representations of energy efficiency metrics would be required to be based on the amended test procedure beginning 360 days after the date of publication of the final rule. 42 U.S.C. 6314(d) (prescribing a 360-day period after a test procedure's publication by which manufacturer representations of energy consumption or energy costs must be based on that procedure).

### **III. Discussion**

#### **A. Amendments to the Current DOE Test Procedure**

DOE proposes making several amendments to the current DOE test procedure, which incorporates ANSI/AHRI 340/360-2007 by reference. These amendments are detailed below.

##### **1. Sections of ANSI/AHRI 340/360-2007 Incorporated by Reference**

Currently, 10 CFR 431.96, Table 2, specifies that when measuring the energy efficiency of CUACs and CUHPs using the metrics EER and coefficient of performance (COP), ANSI/AHRI 340/360-2007 must be used, but omitting section 6.3 of that industry testing standard. DOE proposes that when testing CUACs and CUHPs using the EER, COP, and IEER metrics, only certain sections of ANSI/AHRI 340/360-2007 are required, specifically sections 3, 4, and 6 (but, again, omitting section 6.3), rather than applying the entirety of ANSI/AHRI 340/360-2007. The sections DOE proposes to incorporate are those that include the relevant testing provisions that apply directly to the DOE test procedure, while the excluded sections contain provisions unrelated to the DOE test procedure. DOE proposes not to incorporate section 5 of ANSI/AHRI 340/360-2007, which consists of a single sentence referring to use of ASHRAE 37, “Methods of Testing for Rating Unitary Air-Conditioning and Heat Pump Equipment,” for test methods and procedures. DOE proposes this change because the version of this test method is not specified. Instead, DOE proposes to incorporate by reference the most recent version of this test procedure—ANSI/ASHRAE 37-2009. The test standard would be listed in 10 CFR 431.95, and incorporated by reference in 10 CFR 431.96. In case of a conflict between ANSI/AHRI 340/360-2007 or ANSI/ASHRAE 37-2009 and the CFR, the CFR provisions control.

## 2. Indoor Airflow Adjustment and Reporting

Section 6.1.3.2 of ANSI/AHRI 340/360-2007 establishes minimum external static pressure (ESP) rating requirements for different equipment capacities and requirements for the indoor-coil airflow rate for determining standard ratings. DOE notes that AHRI 340/360 also refers to ESP as “external pressure” and “external resistance.” Section 6.1.3.2 establishes a tolerance of -0 in. H<sub>2</sub>O to + 0.05 in. H<sub>2</sub>O for ESP (i.e., the measured ESP may not be any lower but can be up to 0.05 in. H<sub>2</sub>O higher than the required minimum) but does not contain a tolerance for the airflow rate. Manufacturers are currently required to report, among other information, the model number and specifications of the motor and the drive kit, including settings, associated with that specific motor that were used to determine the certified rating; as well as the rated airflow in SCFM for each fan coil; in the supplemental information submitted with the certification report for the unit. (*See* 10 CFR 429.43(b)(4)(i))

DOE proposes that any subsequent testing (e.g., DOE assessment and enforcement testing) must use the same motor and drive assembly and settings specified in the certification information, and that the party conducting testing would be required to ensure that the ESP is within the tolerances set forth in Section 6.1.3.2 of ANSI/AHRI 340/360-2007 and must verify that the indoor airflow rate is within +/-5 percent of the manufacturer-rated full-load indoor airflow rate. If the indoor airflow in SCFM measured at the required ESP is outside the +/-5 percent tolerance, the unit and/or test facility must be adjusted to set up the unit such that both the airflow and ESP are within the required tolerances. This process may include, but is not limited to, adjusting any adjustable motor sheaves, adjusting variable frequency drive (VFD)

settings, or adjusting the code tester fan. DOE believes that the proposed 5 percent tolerance on airflow is an appropriate compromise of test burden and precision because holding this tolerance has been possible without difficulty in DOE's own testing, and because testing and analysis shows that the impact of up to 5 percent airflow rate variation on capacity and IEER is minimal. For example, DOE testing of a 7.5-ton CUAC unit suggested that 5 percent variation in the full-load airflow would cause 0.5 percent variation in EER and 0.8 percent variation in capacity. DOE also used data available in manufacturer data sheets to calculate IEER as a function of indoor airflow for several commercial air conditioners and determined that a 5 percent variation in airflow would be expected to cause, on average, a 1.5 percent variation in IEER. (See EERE-2015-BT-TP-0015.) DOE requests comment on the appropriateness of the +/- 5 percent tolerance and/or data that might show that a different tolerance level might be more appropriate. This is Issue 1 in section V.B, "Issues on Which DOE Seeks Comment."

ANSI/AHRI 340/360-2007, section 6.1.3.2.e specifies that the full-load cooling airflow rate must be employed for any other condition using full-load air flow (e.g., full-load heating) without regard to resulting ESP. DOE proposes that the +/- 5 percent tolerance for air flow rate must be applied for these other conditions as well. If necessary, a test facility adjustment may have to be made in order to maintain air flow within the required tolerance; for example, adjustment of the code tester fan may be needed to ensure air flow within the specified tolerance range even if the ESP is no longer within the range specified for operation in full-capacity cooling mode. (In this situation, the tester would not adjust the unit under test.) DOE requests comments on this interpretation and clarification of the requirements of ANSI/AHRI 340/360-

2007, section 6.1.3.2.e, regarding operation in modes other than full-capacity cooling. This is Issue 2 in section V.B, “Issues on Which DOE Seeks Comment.”

DOE realizes that some units may be designed to operate with a different indoor airflow rate for cooling or heating mode, such as when the unit incorporates variable speed indoor fans. In that case, DOE proposes that manufacturers would report the individual indoor airflow rates in cooling and heating mode. DOE is proposing this approach in order to capture air flow rates used in the different full-load tests (i.e., heating and cooling). DOE requests comment on whether marketed units actually operate in this manner, and if so, whether this proposed provision would be appropriate for such units. This is Issue 3 in section V.B, “Issues on Which DOE Seeks Comment.”

DOE also proposes that a manufacturer must include in its certification report the adjusted indoor airflow at each part-load condition. Inclusion of these part-load air flow rates would allow confirmation that, during any subsequent third-party testing, the equipment is operating at part-load as rated.

### 3. Condenser Head Pressure Controls

Note 2 of Table 6 of ANSI/AHRI 340/360-2007 specifies that condenser airflow should be adjusted as required by the unit controls for head pressure control. Condenser head pressure controls regulate the flow of refrigerant through the condenser and/or adjust operation of condenser fans to prevent condenser pressures from dropping too low during low-ambient operation. When employed, these controls ensure that the refrigerant pressure is high enough to



maintain adequate flow through refrigerant expansion devices such as thermostatic expansion valves. The use of condenser head pressure controls influences a unit's performance, making it important that this feature be operating during the test because it would be operating in the field. DOE proposes to specify that condenser head pressure controls, if included with the unit, must be active during testing.

The use of condenser head pressure controls may prevent a unit from reaching steady state prior to testing. For example, a unit employing condenser head pressure control might cycle a condenser fan to control head pressure. The current DOE test procedure does not address such operation. Hence, if a unit with condenser head pressure controls cannot achieve steady-state operation with the controls active, and thus cannot be tested, the manufacturer would have to request a waiver. See 10 CFR 431.401 ("Any interested person may submit a petition to waive for a particular basic model the requirements of any uniform test method contained in this part, upon the grounds that ... the basic model contains one or more design characteristics that prevent testing of the basic model according to the prescribed test procedures.") DOE requests comment on whether there are any units sold for which this might occur and what changes, if any, may be needed to DOE's proposal to address this scenario. This is Issue 4 in section V.B, "Issues on Which DOE Seeks Comment."

#### 4. Unit of Measurement for Airflow

ANSI/AHRI 340/360-2007 lacks clarity regarding references to CFM as opposed to SCFM. In order to resolve this, DOE proposes that all instances of CFM as a unit of airflow

must be interpreted to mean SCFM where they appear in the sections of ANSI/AHRI 340/360-2007 incorporated by reference in 10 CFR part 431, subpart F.

#### 5. Tolerance on Percent Load for IEER Part-Load Tests

For calculating IEER, section 6.2.2 of ANSI/AHRI 340/360-2007 specifies that the unit efficiency must be determined at 100 percent, 75 percent, 50 percent, and 25 percent load (defined as part-load net cooling capacity divided by full-load net cooling capacity, then multiplied by 100 percent) at the conditions specified in Table 6 of ANSI/AHRI 340/360-2007 (Table 6). ANSI/AHRI 340/360-2007 also provides instruction for when a unit cannot operate at the 75 percent, 50 percent, and 25 percent part-load test points, but does not specify a *tolerance* for the percent load, i.e. how much can the load deviate from the part-load test point and still be considered operating at the part-load test point. For example, if the calculated percent load for one of the part-load tests is 75.5 percent, are the results of this test acceptable for use as the 75 percent part-load test point condition?

DOE proposes to apply a +/- 3 percent tolerance to each part load test point. In other words, the difference between the percent load calculated for a part-load test point and its target value may be as much as 3 percent and still be considered to be operating at the target part-load test point. DOE anticipates that this proposal will reduce testing time and burden by eliminating additional part-load tests in cases where operation closely approaches but does not exactly meet the target part-load test points. DOE requests comment on establishing this tolerance and on the appropriateness of the proposed tolerance level. This is Issue 5 in section V.B, “Issues on Which DOE Seeks Comment.”

## B. Certification and Enforcement Issues

### 1. Measuring Cooling Capacity for Purposes of Certification, Assessment, and Enforcement

Manufacturers must certify and report CUAC and CUHP cooling capacity (in Btu/h) when certifying the efficiency of this equipment, per 10 CFR 429.43(b)(2). The cooling capacity represented by manufacturers for certification and compliance purposes must be determined through testing in accordance with 10 CFR 431.96. DOE proposes that the cooling capacity certified to DOE for a given basic model must be the average of the capacities measured for the sample of units tested to certify that basic model, rounded according to the multiples in Table 4 in ANSI/AHRI 340/360-2007.

DOE proposes that when conducting assessment and enforcement testing, the total cooling capacity must be measured pursuant to the test requirements of 10 CFR 431.96 for each unit tested, and the results of the measurement(s) (either the measured cooling capacity for a single unit sample or the average of the measured cooling capacities for a multiple-unit sample) compared to the value of cooling capacity certified by the manufacturer. The manufacturer-certified cooling capacity will be considered valid if the cooling capacity determined through DOE testing is within five percent of the certified cooling capacity.

### 2. Compliance Dates of the Test Procedure Amendments

In amending a test procedure for small, large, or very large commercial package air conditioning and heating equipment, EPCA directs DOE to determine to what extent, if any, the test procedure would alter the measured energy efficiency or measured energy use of a covered

product. (42 U.S.C. 6314(a)(4)) If the amended test procedure alters the measured energy efficiency or measured energy use, the Secretary must amend the applicable energy conservation standard accordingly. (42 U.S.C. 6314(a)(4) (requiring that the provisions of 42 U.S.C. 6293(e), which includes determining the impact that changes to a test procedure would have on the measured energy efficiency or energy use of a covered product))

In DOE's view, no aspect of this NOPR is likely to alter the measured efficiency of CUACs and CUHPs. These proposed amendments, which follow the Working Group's recommendations, relate to DOE's efforts to establish amended energy conservation standards for CUACs and CUHPs. As part of that standards rulemaking effort, DOE had proposed, and the Working Group adopted, an approach that would base the amended standards for this equipment on IEER instead of EER. See 79 FR 58947 at 58956 (September 30, 2014); ASRAC Commercial Package Air Conditioners and Commercial Warm Air Furnaces Working Group Term Sheet, at 2 (June 15, 2015). DOE has also proposed a definition of IEER to support the Working Group's approach. Consistent with this transition to IEER as the reporting metric for this equipment, DOE proposes to require the reporting of indoor part-load airflow rates used in the IEER calculation as of the compliance date of the new standard. DOE also proposes another amendment associated with the measurement of IEER -- applying a +/- 3 percent tolerance to each part-load test point for IEER ratings. This proposed amendment, if adopted, would be required as of the compliance date of the new standard.

The proposed amendments not specifically related to IEER would, rather than alter the measured efficiency or measured energy use of CUAC and CUHP equipment, clarify how to test

this equipment. These proposed amendments would limit the incorporation by reference of ANSI/AHRI 340/360-2007 to certain sections, establish a tolerance on full-load indoor airflow, add condenser head pressure control requirements, and clarify units of measurement for airflow. These proposals, if adopted, would result in no procedural changes related to how testing would be performed. These proposed amendments, if adopted, would become effective 30 days after publication of the final rule in the Federal Register. Consistent with 42 U.S.C. 6314(d), any representations of energy consumption of CUACs and CUHPs must be based on any final amended test procedures 360 days after the publication of the test procedure final rule.

#### **IV.Procedural Issues and Regulatory Review**

##### **A. Review Under Executive Order 12866**

The Office of Management and Budget (OMB) has determined that test procedure rulemakings do not constitute “significant regulatory actions” under section 3(f) of Executive Order 12866, Regulatory Planning and Review, 58 FR 51735 (Oct. 4, 1993). Accordingly, this action was not subject to review under the Executive Order by the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget.

##### **B. Review Under the Regulatory Flexibility Act**

The Regulatory Flexibility Act (5 U.S.C. 601 et seq.) requires preparation of an initial regulatory flexibility analysis (IRFA) for any rule that by law must be proposed for public comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. As required by Executive Order 13272, “Proper Consideration of Small Entities in Agency Rulemaking,” 67 FR 53461 (August

16, 2002), DOE published procedures and policies on February 19, 2003, to ensure that the potential impacts of its rules on small entities are properly considered during the DOE rulemaking process. 68 FR 7990. DOE has made its procedures and policies available on the Office of the General Counsel's website: <http://energy.gov/gc/office-general-counsel>.

DOE reviewed today's proposed rule under the provisions of the Regulatory Flexibility Act and the procedures and policies published on February 19, 2003. This proposed rule prescribes test procedures that will be used to test compliance with energy conservation standards for the equipment that are the subject of this rulemaking. DOE has tentatively concluded that the proposed rule would not have a significant impact on a substantial number of small entities.

For manufacturers of small, large, and very large air-cooled CUAC and CUHP, the Small Business Administration (SBA) has set a size threshold, which defines those entities classified as "small businesses" for the purposes of the statute. DOE used the SBA's small business size standards to determine whether any small entities would be subject to the requirements of the rule. 65 FR 30836, 30848 (May 15, 2000), as amended at 65 FR 53533, 53544 (Sept. 5, 2000) and codified at 13 CFR part 121. The size standards are listed by North American Industry Classification System (NAICS) code and industry description and are available at <http://www.sba.gov/category/navigation-structure/contracting/contracting-officials/small-business-size-standards>. Manufacturing of small, large, and very large air-cooled CUAC and CUHP is classified under NAICS 333415, "Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing." The SBA sets a

threshold of 750 employees or less for an entity to be considered as a small business for this category. DOE initially identified 12 potential manufacturers of commercial packaged air conditioners sold in the U.S. DOE then determined that 10 were large manufacturers, manufacturers that are foreign-owned and -operated, or manufacturers that do not produce products covered by this rulemaking. DOE was able to determine that 2 manufacturers meet the SBA's definition of a "small business" and manufacture products covered by this rulemaking.

DOE expects the impact of the proposed rule on manufacturers, including small businesses, to be minimal. The proposed rule would amend DOE's certification requirements to specify additional reporting requirements and add enforcement provisions for verifying cooling capacity. The proposed rule would also clarify or amend DOE's test procedures to amend AHRI Standard 340/360-2007, "2007 Standard for Performance Rating of Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment," to incorporate certain sections by reference, specify requirements for airflow adjustment and tolerance to meet other rating conditions, require units with condenser head pressure controls to be tested with those controls active, clarify the unit of measurement for airflow, and establish a tolerance on part-load rating points.

The Working Group has recommended amended energy conservation standards rulemaking that the standards will be based on the metric of integrated energy efficiency ratio (IEER) instead of energy efficiency ratio (EER). DOE expects the impact on test burden to be modest. AHRI ratings already include IEER, indicating that many manufacturers, representing a large portion of the market, already determine IEER for their units. ANSI/ASHRAE/IES

Standard 90.1-2013 -- Energy Standard for Buildings Except Low-Rise Residential Buildings (ASHRAE 90.1-2013) has adopted an IEER requirement, which makes reporting of IEER necessary for shipment to those states and localities that will adopt that standard in building codes. Current procedures relating to alternative efficiency determination methods (AEDMs), including procedures for certifying IEER, require a limited amount of testing to be conducted when validating an AEDM for CUACs and CUHPs. 10 CFR 429.70(c)(2)(iv) (detailing the minimum number of distinct basic models required to be test for purposes of AEDM validation for different equipment types and classes) . DOE expects that most CUAC and CUHP ratings will be based on results obtained from AEDMs. Although DOE recognizes that some ratings will be based on testing, DOE expects these ratings to comprise a small minority of products.

However, to help DOE better understand the burdens when measuring IEER instead of EER, DOE requests comment and data on manufacturer expectations of the number of models that will likely be tested rather than rated with an AEDM. DOE encourages confidential data submissions if necessary in order to ensure that such data can be provided.

For these reasons, DOE certifies that this proposed rule would not have a significant economic impact on a substantial number of small entities. Accordingly, DOE has not prepared a regulatory flexibility analysis for this rulemaking. DOE will transmit the certification and supporting statement of factual basis to the Chief Counsel for Advocacy of the SBA for review under 5 U.S.C. 605(b).



### C. Review Under the Paperwork Reduction Act of 1995

Manufacturers of small, large, and very large air-cooled CUAC and CUHP equipment must certify to DOE that their equipment complies with any applicable energy conservation standards. In certifying compliance, manufacturers must test their equipment according to the appropriate DOE test procedures for this equipment, including any applicable amendments. DOE has established regulations for the certification and recordkeeping requirements for all covered consumer products and commercial equipment, including CUACs and CUHPs. See 10 CFR part 429, Subpart B. The collection-of-information requirement for the certification and recordkeeping is subject to review and approval by OMB under the Paperwork Reduction Act (PRA).

In the Certification of Commercial Equipment Final Rule published in May 2014, DOE amended existing regulations governing compliance certification for a variety of commercial equipment covered by EPCA, which affected CUAC and CUHP manufacturers. 79 FR 25486 at 25502 (May 5, 2014). In today's NOPR, DOE proposes to amend its certification requirements to specify additional reporting requirements. DOE does not believe that these additions to the certification requirements constitute a significant additional burden upon respondents, as they require minimal additional information to what manufacturers must already report in their certification reports. DOE believes that the Certification of Commercial Equipment Final Rule provides an accurate estimate of the existing burden on respondents and would continue to apply to the relevant aspects of the proposed amendments. See 79 FR at 25496-25498 (detailing burden estimates and indicating an average burden of approximately 30 hours per company on an

annual basis). OMB has approved the revised information collection for DOE's certification and recordkeeping requirements. 80 FR 5099 (January 30, 2015).

Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the PRA, unless that collection of information displays a currently valid OMB Control Number.

#### D. Review Under the National Environmental Policy Act of 1969

In this proposed rule, DOE proposes test procedure amendments that it expects will be used to develop and implement future energy conservation standards for commercial unitary air conditioners and commercial unitary heat pumps. DOE has determined that this rule falls into a class of actions that are categorically excluded from review under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and DOE's implementing regulations at 10 CFR part 1021. Specifically, this proposed rule would amend the existing test procedures without affecting the amount, quality or distribution of energy usage, and, therefore, would not result in any environmental impacts. Thus, this rulemaking is covered by Categorical Exclusion A5 under 10 CFR part 1021, subpart D, which applies to any rulemaking that interprets or amends an existing rule without changing the environmental effect of that rule. Accordingly, neither an environmental assessment nor an environmental impact statement is required.

#### E. Review Under Executive Order 13132

Executive Order 13132, “Federalism,” 64 FR 43255 (August 4, 1999) imposes certain requirements on agencies formulating and implementing policies or regulations that preempt State law or that have Federalism implications. The Executive Order requires agencies to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and to carefully assess the necessity for such actions. The Executive Order also requires agencies to have an accountable process to ensure meaningful and timely input by State and local officials in the development of regulatory policies that have Federalism implications. On March 14, 2000, DOE published a statement of policy describing the intergovernmental consultation process it will follow in the development of such regulations. 65 FR 13735. DOE has examined this proposed rule and has determined that it would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. EPCA governs and prescribes Federal preemption of State regulations as to energy conservation for the equipment that is the subject of today’s proposed rule. States can petition DOE for exemption from such preemption to the extent, and based on criteria, set forth in EPCA. (42 U.S.C. 6297(d)) No further action is required by Executive Order 13132.

#### F. Review Under Executive Order 12988

Regarding the review of existing regulations and the promulgation of new regulations, section 3(a) of Executive Order 12988, “Civil Justice Reform,” 61 FR 4729 (Feb. 7, 1996), imposes on Federal agencies the general duty to adhere to the following requirements: (1) eliminate drafting errors and ambiguity; (2) write regulations to minimize litigation; (3) provide

a clear legal standard for affected conduct rather than a general standard; and (4) promote simplification and burden reduction. Section 3(b) of Executive Order 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) clearly specifies the preemptive effect, if any; (2) clearly specifies any effect on existing Federal law or regulation; (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction; (4) specifies the retroactive effect, if any; (5) adequately defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in sections 3(a) and 3(b) to determine whether they are met or it is unreasonable to meet one or more of them. DOE has completed the required review and determined that, to the extent permitted by law, the proposed rule meets the relevant standards of Executive Order 12988.

#### G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA) requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. Pub. L. No. 104-4, sec. 201 (codified at 2 U.S.C. 1531). For a proposed regulatory action likely to result in a rule that may cause the expenditure by State, local, and Tribal governments, in the aggregate, or by the private sector of \$100 million or more in any one year (adjusted annually for inflation), section 202 of UMRA requires a Federal agency to publish a written statement that estimates the resulting costs, benefits, and other effects on the national economy. (2 U.S.C. 1532(a), (b)) The UMRA also requires a Federal agency to develop an effective process to permit timely input by elected officers of State, local, and Tribal

governments on a proposed “significant intergovernmental mandate,” and requires an agency plan for giving notice and opportunity for timely input to potentially affected small governments before establishing any requirements that might significantly or uniquely affect small governments. On March 18, 1997, DOE published a statement of policy on its process for intergovernmental consultation under UMRA. 62 FR 12820; also available at <http://energy.gov/gc/office-general-counsel>. DOE examined this proposed rule according to UMRA and its statement of policy and determined that the proposed rule contains neither an intergovernmental mandate, nor a mandate that may result in the expenditure of \$100 million or more in any year, so these requirements do not apply.

#### H. Review Under the Treasury and General Government Appropriations Act, 1999

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105-277) requires Federal agencies to issue a Family Policymaking Assessment for any rule that may affect family well-being. This rule would not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

#### I. Review Under Executive Order 12630

DOE has determined, under Executive Order 12630, “Governmental Actions and Interference with Constitutionally Protected Property Rights” 53 FR 8859 (March 18, 1988), that this regulation would not result in any takings that might require compensation under the Fifth Amendment to the U.S. Constitution.

J. Review Under Treasury and General Government Appropriations Act, 2001

Section 515 of the Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516 note) provides for agencies to review most disseminations of information to the public under guidelines established by each agency pursuant to general guidelines issued by OMB. OMB's guidelines were published at 67 FR 8452 (Feb. 22, 2002), and DOE's guidelines were published at 67 FR 62446 (Oct. 7, 2002). DOE has reviewed today's proposed rule under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

K. Review Under Executive Order 13211

Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," 66 FR 28355 (May 22, 2001), requires Federal agencies to prepare and submit to OMB, a Statement of Energy Effects for any proposed significant energy action. A "significant energy action" is defined as any action by an agency that promulgated or is expected to lead to promulgation of a final rule, and that: (1) is a significant regulatory action under Executive Order 12866, or any successor order; and (2) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (3) is designated by the Administrator of OIRA as a significant energy action. For any proposed significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use should the proposal be implemented, and of reasonable alternatives to the action and their expected benefits on energy supply, distribution, and use.

Today's regulatory action to amend the test procedure for measuring the energy efficiency of CUACs and CUHPs is not a significant regulatory action under Executive Order 12866. Moreover, it would not have a significant adverse effect on the supply, distribution, or use of energy, nor has it been designated as a significant energy action by the Administrator of OIRA. Therefore, it is not a significant energy action, and, accordingly, DOE has not prepared a Statement of Energy Effects.

L. Review Under Section 32 of the Federal Energy Administration Act of 1974

Under section 301 of the Department of Energy Organization Act (Pub. L. 95-91; 42 U.S.C. 7101), DOE must comply with section 32 of the Federal Energy Administration Act of 1974, as amended by the Federal Energy Administration Authorization Act of 1977. (15 U.S.C. 788; FEAA) Section 32 essentially provides in relevant part that, where a proposed rule authorizes or requires use of commercial standards, the notice of proposed rulemaking must inform the public of the use and background of such standards. In addition, section 32(c) requires DOE to consult with the Attorney General and the Chairman of the Federal Trade Commission (FTC) concerning the impact of the commercial or industry standards on competition.

The proposed rule incorporates testing methods contained in the following commercial standards: ANSI/AHRI Standard 340/360-2007 and ANSI/ASHRAE Standard 37-2009. The Department has evaluated these standards and is unable to conclude whether they fully comply with the requirements of section 32(b) of the FEAA, (i.e., that they were developed in a manner that fully provides for public participation, comment, and review). DOE will consult with the

Attorney General and the Chairman of the FTC concerning the impact of these test procedures on competition, prior to prescribing a final rule.

M. Description of Materials Incorporated by Reference

DOE is proposing to incorporate by reference ANSI/AHRI Standard 340/360-2007 (with Addenda 1 and 2), “2007 Standard for Performance Rating of Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment.” This is an industry-accepted standard used by manufacturers when testing and rating the performance of commercial and industrial unitary air-conditioning and heat pump equipment. Copies of this testing standard are available for download at

[http://www.ahrinet.org/App\\_Content/ahri/files/standards%20pdfs/ANSI%20standards%20pdfs/ANSI%20AHRI%20Standard%20340-360-2007%20with%20Addenda%201%20and%202.pdf](http://www.ahrinet.org/App_Content/ahri/files/standards%20pdfs/ANSI%20standards%20pdfs/ANSI%20AHRI%20Standard%20340-360-2007%20with%20Addenda%201%20and%202.pdf).

**V. Public Participation**

A. Submission of Comments

DOE will accept comments, data, and information regarding this proposed rule before or after the public meeting, but no later than the date provided in the DATES section at the beginning of this proposed rule. Interested parties may submit comments using any of the methods described in the ADDRESSES section at the beginning of this notice.

Submitting comments via regulations.gov. The regulations.gov web page will require you to provide your name and contact information. Your contact information will be viewable to



DOE Building Technologies staff only. Your contact information will not be publicly viewable except for your first and last names, organization name (if any), and submitter representative name (if any). If your comment is not processed properly because of technical difficulties, DOE will use this information to contact you. If DOE cannot read your comment due to technical difficulties and cannot contact you for clarification, DOE may not be able to consider your comment.

However, your contact information will be publicly viewable if you include it in the comment or in any documents attached to your comment. Any information that you do not want to be publicly viewable should not be included in your comment, nor in any document attached to your comment. Persons viewing comments will see only first and last names, organization names, correspondence containing comments, and any documents submitted with the comments.

Do not submit to regulations.gov information for which disclosure is restricted by statute, such as trade secrets and commercial or financial information (hereinafter referred to as Confidential Business Information (CBI)). Comments submitted through regulations.gov cannot be claimed as CBI. Comments received through the website will waive any CBI claims for the information submitted. For information on submitting CBI, see the Confidential Business Information section.

DOE processes submissions made through regulations.gov before posting. Normally, comments will be posted within a few days of being submitted. However, if large volumes of comments are being processed simultaneously, your comment may not be viewable for up to

several weeks. Please keep the comment tracking number that regulations.gov provides after you have successfully uploaded your comment.

Submitting comments via email, hand delivery, or mail. Comments and documents submitted via email, hand delivery, or mail also will be posted to regulations.gov. If you do not want your personal contact information to be publicly viewable, do not include it in your comment or any accompanying documents. Instead, provide your contact information on a cover letter. Include your first and last names, email address, telephone number, and optional mailing address. The cover letter will not be publicly viewable as long as it does not include any comments

Include contact information each time you submit comments, data, documents, and other information to DOE. If you submit via mail or hand delivery, please provide all items on a CD, if feasible. It is not necessary to submit printed copies. No facsimiles (faxes) will be accepted.

Comments, data, and other information submitted to DOE electronically should be provided in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format. Provide documents that are not secured, written in English and free of any defects or viruses. Documents should not contain special characters or any form of encryption and, if possible, they should carry the electronic signature of the author.

Campaign form letters. Please submit campaign form letters by the originating organization in batches of between 50 to 500 form letters per PDF or as one form letter with a

list of supporters' names compiled into one or more PDFs. This reduces comment processing and posting time.

Confidential Business Information. According to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email, postal mail, or hand delivery two well-marked copies: one copy of the document marked confidential including all the information believed to be confidential, and one copy of the document marked non-confidential with the information believed to be confidential deleted. Submit these documents via email or on a CD, if feasible. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

Factors of interest to DOE when evaluating requests to treat submitted information as confidential include: (1) A description of the items; (2) whether and why such items are customarily treated as confidential within the industry; (3) whether the information is generally known by or available from other sources; (4) whether the information has previously been made available to others without obligation concerning its confidentiality; (5) an explanation of the competitive injury to the submitting person which would result from public disclosure; (6) when such information might lose its confidential character due to the passage of time; and (7) why disclosure of the information would be contrary to the public interest.

It is DOE's policy that all comments may be included in the public docket, without change and as received, including any personal information provided in the comments (except information deemed to be exempt from public disclosure).

#### B. Issues on Which DOE Seeks Comment

Although DOE welcomes comments on any aspect of this proposal, DOE is particularly interested in receiving comments and views of interested parties concerning the following issues:

1. DOE proposes that when conducting full-load cooling tests with the appropriate external static pressure (ESP) condition in Table 5 of ANSI/AHRI 340/360-2007, the tester must use the motor and drive kit that was used to determine the certified rating, as specified in the manufacturer's certification information. During such testing, the indoor airflow must be within +/- 5 percent of the manufacturer's rated full-load indoor airflow rate. If the indoor airflow at the required ESP is outside the +/- 5 percent tolerance, make necessary adjustments to the test setup and/or the unit such that both the airflow and ESP are within the required tolerances. DOE requests comment on the appropriateness of the +/- 5 percent tolerance and/or data showing that a different tolerance level might be more appropriate, as well as feedback on the burden of maintaining airflow within the tolerance. See section III.A.2 for details.
2. Section 6.1.3.2.e of ANSI/AHRI 340/360-2007 specifies that the full-load cooling airflow rate must be maintained for any other condition using full-load air flow (e.g., full-load heating) without regard to resulting ESP. DOE proposes that in this situation, the +/- 5 percent tolerance on the full-load cooling airflow rate must also apply. To maintain the airflow within the required tolerance, the tester may make adjustments to the test facility

or apparatus, but not the unit being tested. DOE requests comments on this interpretation and clarification of the requirements of section 6.1.3.2.e of ANSI/AHRI 340/360-2007 regarding operation in modes other than full-capacity cooling. See section III.A.2 for details.

3. For all units, certification requirements already include reporting of the indoor airflow at full capacity cooling operation. If units are designed to operate with a different indoor airflow for cooling and heating mode, DOE proposes that manufacturers would separately report the indoor airflow in cooling and heating mode. DOE requests comment on whether this approach is appropriate and also requests comment on whether any units in the market are designed to operate with a different full-load air flow for heating and cooling modes. See section III.A.2 for details.
4. DOE proposes that condenser head pressure controls, if included in a unit, must be active during testing. DOE requests comment on whether there are any units on the market with condenser head pressure controls that would prevent the unit from achieving steady state under the test conditions. If so, how should DOE address these kinds of units for testing purposes? See section III.A.3 for details.
5. For calculating IEER, section 6 of ANSI/AHRI 340/360-2007 specifies that the unit efficiency must be determined at 100 percent, 75 percent, 50 percent, and 25 percent load (defined as net part-load cooling capacity divided by full-load net cooling capacity times 100 percent). ANSI/AHRI 340/360-2007 also provides instruction for when a unit cannot operate at the 75 percent, 50 percent, and 25 percent part-load test points, but does not specify a *tolerance* for the percent load, i.e. how much can the load deviate from the part-load test point and still be considered operating at the part-load test point. DOE proposes

to apply a  $\pm 3$  percent tolerance on the percent load for approach to each part-load rating point. In other words, the difference between the percent load calculated for a part-load test point and its target value may be as much as 3 percent and still be considered to be operating at the target part-load test point. DOE requests comment on the appropriateness of the tolerance level. See section III.A.5 for details.

## **VI. Approval of the Office of the Secretary**

The Secretary of Energy has approved publication of this proposed rule.

### **List of Subjects**

#### **10 CFR Part 429**

Confidential business information, Energy conservation, Commercial equipment, Imports, Incorporation by reference, Reporting and recordkeeping requirements.

#### **10 CFR Part 431**

Administrative practice and procedure, Confidential business information, Energy conservation, Commercial equipment, Imports, Incorporation by reference, Intergovernmental relations, Small businesses.

Issued in Washington, DC, on July 27, 2015

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Kathleen B. Hogan  
Deputy Assistant Secretary for Energy Efficiency  
Energy Efficiency and Renewable Energy

For the reasons stated in the preamble, DOE proposes to amend parts 429 and 431 of Chapter II, Subchapter D, of Title 10 the Code of Federal Regulations as set forth below:

**PART 429 – CERTIFICATION, COMPLIANCE AND ENFORCEMENT FOR  
CONSUMER PRODUCTS AND COMMERCIAL AND INDUSTRIAL EQUIPMENT**

1. The authority citation for part 429 continues to read as follows:

**Authority:** 42 U.S.C. 6291-6317.

2. Amend § 429.4 by redesignating paragraph (c) as (d) and adding a new paragraph (c) to read as follows:

**§ 429.4 Materials incorporated by reference.**

\* \* \* \* \*

(c) AHRI. Air-Conditioning, Heating, and Refrigeration Institute, 2111 Wilson Blvd., Suite 500, Arlington, VA 22201, (703) 524-8800, or go to: <http://www.ahrinet.org>.

(1) ANSI/AHRI Standard 340/360-2007, “2007 Standard for Performance Rating of Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment,” approved by ANSI on October 27, 2011 and updated by addendum 1 in December 2010 and addendum 2 in June 2011 (AHRI 340/360-2007), IBR approved for § 429.43.

(2) Reserved.

\* \* \* \* \*

3. Amend § 429.43 by revising paragraphs (a)(1)(iii), (b)(2)(i) and (ii), (b)(4)(i) and (ii), to read as follows:

**§ 429.43 Commercial heating, ventilating, air conditioning (HVAC) equipment.**



(a) \* \* \*

(1) \* \* \*

(iii) For commercial unitary air conditioners and commercial unitary heat pumps the represented value of cooling capacity must be the average of the capacities measured for the units in the sample selected as described in paragraph (a)(1)(ii) of this section, rounded to the nearest appropriate Btu/h multiple according to Table 4 of ANSI/AHRI 340/360-2007 (incorporated by reference, see § 429.43).

\* \* \* \* \*

(b) \* \* \*

(2) \* \* \*

(i) Commercial package air-conditioning equipment (except commercial package air conditioning equipment that is air-cooled with a cooling capacity less than 65,000 Btu/h):

(A) when certifying compliance with the January 1, 2010 energy conservation standards: the energy efficiency ratio (EER in British thermal units per Watt-hour (Btu/Wh)), the rated cooling capacity in British thermal units per hour (Btu/h), and the type(s) of heating used by the basic model (e.g., electric, gas, hydronic, none).

(B) when certifying compliance with the January 1, 2018 or the January 1, 2023 energy conservation standards: the integrated energy efficiency ratio (IEER in British thermal units per Watt-hour (Btu/Wh)), the rated cooling capacity in British thermal units per hour (Btu/h), and the type(s) of heating used by the basic model (e.g., electric, gas, hydronic, none).

(ii) Commercial package heating equipment (except commercial package heating equipment that is air-cooled with a cooling capacity less than 65,000 Btu/h):

(A) when certifying compliance with the January 1, 2010 energy conservation standards: the energy efficiency ratio (EER in British thermal units per Watt-hour (Btu/Wh)), the coefficient of performance (COP), the rated cooling capacity in British thermal units per hour (Btu/h), and the type(s) of heating used by the basic model (e.g., electric, gas, hydronic, none).

(B) when certifying compliance with the January 1, 2018 or the January 1, 2023 energy conservation standards: the integrated energy efficiency ratio (IEER in British thermal units per Watt-hour (Btu/Wh)), the coefficient of performance (COP), the rated cooling capacity in British thermal units per hour (Btu/h), and the type(s) of heating used by the basic model (e.g., electric, gas, hydronic, none).

\* \* \* \*

(4) \* \*

(i) Commercial package air-conditioning equipment (except commercial package air conditioning equipment that is air-cooled with a cooling capacity less than 65,000 Btu/h): rated indoor airflow in standard cubic feet per minute (SCFM) for each fan coil; water flow rate in gallons per minute (gpm) for water-cooled units only; rated external static pressure in inches of water; frequency or control set points for variable speed components (e.g., compressors, VFDs); required dip switch/control settings for step or variable components; a statement whether the model will operate at test conditions without manufacturer programming; any additional testing instructions, if applicable; and if a variety of motors/drive kits are offered for sale as options in the basic model to account for varying installation requirements, the model number and specifications of the motor (to include efficiency, horsepower, open/closed, and number of poles) and the drive kit, including settings, associated with that specific motor that were used to

determine the certified rating. When certifying compliance with the January 1, 2018 or the January 1, 2023 energy conservation standards, rated indoor airflow in SCFM for each part-load point used in the IEER calculation and any special instructions required to obtain operation at each part-load point, such as frequency or control set points for variable speed components (e.g., compressors, VFDs), dip switch/control settings for step or variable components, or any additional applicable testing instructions, are also required.

(ii) Commercial package heating equipment (except commercial package heating equipment that is air-cooled with a cooling capacity less than 65,000 Btu/h): The rated heating capacity in British thermal units per hour (Btu/h); rated indoor airflow in standard cubic feet per minute (SCFM) for each fan coil (in cooling mode); rated airflow in SCFM for each fan coil in heating mode if the unit is designed to operate with different airflow rates for cooling and heating mode; water flow rate in gallons per minute (gpm) for water cooled units only; rated external static pressure in inches of water; frequency or control set points for variable speed components (e.g., compressors, VFDs); required dip switch/control settings for step or variable components; a statement whether the model will operate at test conditions without manufacturer programming; any additional testing instructions, if applicable; and if a variety of motors/drive kits are offered for sale as options in the basic model to account for varying installation requirements, the model number and specifications of the motor (to include efficiency, horsepower, open/closed, and number of poles) and the drive kit, including settings, associated with that specific motor that were used to determine the certified rating. When certifying compliance with the January 1, 2018 or the January 1, 2023 energy conservation standards, rated indoor airflow in SCFM for each part-load point used in the IEER calculation and any special instructions required to obtain operation at each part-load point, such as frequency or control set points for variable speed

components (e.g., compressors, VFDs), dip switch/control settings for step or variable components, or any additional applicable testing instructions, are also required.

\* \* \* \* \*

4. Amend §429.134 by adding paragraph (c) to read as follows:

**§429.134 Product-specific enforcement provisions.**

\* \* \* \* \*

(c) Commercial unitary air conditioners and commercial unitary heat pumps—Verification of cooling capacity. The cooling capacity of each tested unit of the basic model will be measured pursuant to the test requirements of part 431 of this chapter for each unit tested. The results of the measurement(s) will be compared to the value of cooling capacity certified by the manufacturer. The certified cooling capacity will be considered valid only if the measurement(s) (either the measured cooling capacity for a single unit sample or the average of the measured cooling capacities for a multiple unit sample) is within five percent of the certified cooling capacity.

(1) If the certified cooling capacity is found to be valid, the certified cooling capacity will be used as the basis for determining the equipment class.

(2) If the certified cooling capacity is found to be invalid, the average of the measured cooling capacity will be used as the basis for determining the equipment class.

\* \* \* \* \*

**PART 431 – ENERGY EFFICIENCY PROGRAM FOR CERTAIN COMMERCIAL AND INDUSTRIAL EQUIPMENT**

5. The authority citation for part 431 continues to read as follows:

**Authority:** 42 U.S.C. 6291-6317.

6. Amend §431.92 by adding a definition of “integrated energy efficiency ratio” in alphabetical order to read as follows:

**§431.92 Definitions concerning commercial air conditioners and heat pumps.**

\* \* \* \* \*

*Integrated energy efficiency ratio*, or IEER, means a single number part-load efficiency based on weighting of EER at various load capacities, as measured in Appendix A to Subpart F of part 431, expressed in Btu/watt-hour.

\* \* \* \* \*

**§ 431.95 [Amended]**

6. Amend §431.95 by adding “and Appendix A to subpart F of part 431” at the end of paragraphs (b)(5) and (c)(2).

5. Amend §431.96 by revising paragraphs (b)(1) and (c) and Table 1 to read as follows:

**§ 431.96 Uniform test method for the measurement of energy efficiency of commercial air conditioners and heat pumps.**

\* \* \* \* \*

(b) \* \* \*

(1) Determine the energy efficiency of each type of covered equipment by conducting the test procedure(s) listed in Table 1 of this section along with any additional testing provisions set forth in paragraphs (c) through (g) of this section and appendix A to this subpart, that apply to the energy efficiency descriptor for that equipment, category, and cooling capacity. The omitted sections of the test procedures listed in Table 1 of this section must not be used.

**Table 1 to §431.96—Test Procedures for Commercial Air Conditioners and Heat Pumps**

<b>Equipment type</b>	<b>Category</b>	<b>Cooling capacity</b>	<b>Energy efficiency descriptor</b>	<b>Use tests, conditions, and procedures<sup>1</sup> in</b>	<b>Additional test procedure provisions as indicated in the listed paragraphs of this section</b>
Small Commercial Packaged Air-Conditioning and Heating Equipment	Air-Cooled, 3-Phase, AC and HP	<65,000 Btu/h	SEER and HSPF	AHRI 210/240-2008 (omit section 6.5).	Paragraphs (c) and (e)
	Air-Cooled AC and HP	≥65,000 Btu/h and <135,000 Btu/h	EER, IEER, and COP	Appendix A to this subpart.	None
	Water-Cooled and Evaporatively-Cooled AC	<65,000 Btu/h	EER	AHRI 210/240-2008 (omit section 6.5).	Paragraphs (c) and (e)
		≥65,000 Btu/h and <135,000 Btu/h	EER	AHRI 340/360-2007 (omit section 6.3).	Paragraphs (c) and (e)
	Water-Source HP	<135,000 Btu/h	EER and COP	ISO Standard 13256-1 (1998).	Paragraph (e)
Large Commercial Packaged Air-Conditioning and Heating Equipment	Air-Cooled AC and HP	≥135,000 Btu/h and <240,000 Btu/h	EER, IEER and COP	Appendix A to this subpart.	None
	Water-Cooled and Evaporatively-Cooled AC	≥135,000 Btu/h and <240,000 Btu/h	EER	AHRI 340/360-2007 (omit section 6.3).	Paragraphs (c) and (e)
Very Large Commercial Packaged Air-Conditioning and Heating Equipment	Air-Cooled AC and HP	≥240,000 Btu/h and <760,000 Btu/h	EER, IEER and COP	Appendix A to this subpart.	None
	Water-Cooled and Evaporatively-Cooled AC	≥240,000 Btu/h and <760,000 Btu/h	EER	AHRI 340/360-2007 (omit section 6.3).	Paragraphs (c) and (e)
Packaged Terminal Air	AC and HP	<760,000 Btu/h	EER and COP	Paragraph (g) of this section.	Paragraphs (c), (e), and (g)

Conditioners and Heat Pumps					
Computer Room Air Conditioners	AC	<65,000 Btu/h	SCOP	ASHRAE 127-2007 (omit section 5.11).	Paragraphs (c) and (e)
		≥65,000 Btu/h and <760,000 Btu/h	SCOP	ASHRAE 127-2007 (omit section 5.11).	Paragraphs (c) and (e)
Variable Refrigerant Flow Multi-split Systems, Air-Cooled	AC	<65,000 Btu/h	SEER	AHRI 1230-2010 (omit sections 5.1.2 and 6.6).	Paragraphs (c), (d), (e), and (f)
		≥65,000 Btu/h and <760,000 Btu/h	EER	AHRI 1230-2010 (omit sections 5.1.2 and 6.6).	Paragraphs (c), (d), (e), and (f)
	HP	<65,000 Btu/h	SEER and HSPF	AHRI 1230-2010 (omit sections 5.1.2 and 6.6).	Paragraphs (c), (d), (e), and (f)
		≥65,000 Btu/h and <760,000 Btu/h	EER and COP	AHRI 1230-2010 (omit sections 5.1.2 and 6.6).	Paragraphs (c), (d), (e), and (f)
Variable Refrigerant Flow Multi-split Systems, Water-source	HP	<760,000 Btu/h	EER and COP	AHRI 1230-2010 (omit sections 5.1.2 and 6.6).	Paragraphs (c), (d), (e), and (f)
Single Package Vertical Air Conditioners and Single Package Vertical Heat Pumps	AC and HP	<760,000 Btu/h	EER and COP	AHRI 390-2003 (omit section 6.4).	Paragraphs (c) and (e)

<sup>1</sup>Incorporated by reference, see §431.95.

\* \* \* \* \*

(c) *Optional break-in period for tests conducted using AHRI 210/240-2008, AHRI 390-2003, AHRI 1230-2010, and ASHRAE 127-2007.* Manufacturers may optionally specify a “break-in” period, not to exceed 20 hours, to operate the equipment under test prior to conducting the test method specified by AHRI 210/240-2008, AHRI 390-2003, AHRI 1230-2010, or ASHRAE 127-2007 (incorporated by reference, see §431.95). A manufacturer who elects to use an optional compressor break-in period in its certification testing should record this information (including

the duration) in the test data underlying the certified ratings that is required to be maintained under 10 CFR 429.71.

\* \* \* \* \*

7. Add Appendix A to subpart F of part 431 to read as follows:

**Appendix A to Subpart F of Part 431—Uniform Test Method for the Measurement of Energy Consumption of Air-Cooled Small, Large, and Very Large Commercial Packaged (Unitary) Air Conditioning and Heating Equipment**

Note: Prior to [DATE 360 DAYS AFTER PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER], representations with respect to the energy use or efficiency of commercial unitary air conditioners and heat pumps (CUACs and CUHPs), including compliance certifications, must be based on testing conducted in accordance with either Table 1 to §431.96 as it now appears or Table 1 to §431.96 as it appeared at 10 CFR part 431, subpart F, in the 10 CFR parts 200 to 499 edition revised as of January 1, 2015. After [DATE 360 DAYS AFTER DATE OF PUBLICATION OF THE FINAL RULE], representations with respect to energy use or efficiency of commercial unitary air conditioners and heat pumps (CUACs and CUHPs), including compliance certifications, must be based on testing conducted in accordance with Table 1 to §431.96.

(1) *Cooling mode test method.* The test method for testing commercial unitary air conditioners and commercial unitary heat pumps in cooling mode must consist of application of the methods and conditions in ANSI/AHRI 340/360-2007 sections 3, 4, and 6 (omitting section 6.3) (incorporated by reference; see §431.95), and in ANSI/ASHRAE 37-2009 (incorporated by



reference; see §431.95). In case of a conflict between ANSI/AHRI 340/360-2007 or ANSI/ASHRAE 37-2009 and the CFR, the CFR provisions control.

(2) *Heating mode test method.* The test method for testing commercial unitary heat pumps in heating mode must consist of application of the methods and conditions in ANSI/AHRI 340/360-2007 sections 3, 4, and 6 (omitting section 6.3) (incorporated by reference; see §431.95), and in ANSI/ASHRAE 37-2009 (incorporated by reference; see §431.95). In case of a conflict between ANSI/AHRI 340/360-2007 or ANSI/ASHRAE 37-2009 and the CFR, the CFR provisions control.

(3) *Minimum External Static Pressure.* Use the certified cooling capacity for the basic model to choose the minimum external static pressure found in table 5 of section 6 of ANSI/AHRI 340/360-2007 for testing.

(4) *Optional Break-in Period.* Manufacturers may optionally specify a “break-in” period, not to exceed 20 hours, to operate the equipment under test prior to conducting the test method in appendix A. A manufacturer who elects to use an optional compressor break-in period in its certification testing should record this information (including the duration) as part of the information in the supplemental testing instructions under 10 CFR 429.43.

(5) *Additional Provisions for Equipment Set-up.* The only additional specifications that may be used in setting up a unit for test are those set forth in the installation and operation manual shipped with the unit. Each unit should be set up for test in accordance with the manufacturer installation and operation manuals. Paragraphs (5)(a) through (b) of this section provide specifications for addressing key information typically found in the installation and operation manuals.

(a) If a manufacturer specifies a range of superheat, sub-cooling, and/or refrigerant pressure in its installation and operation manual for a given basic model, any value(s) within that range may be used to determine refrigerant charge or mass of refrigerant, unless the manufacturer clearly specifies a rating value in its installation and operation manual, in which case the specified rating value shall be used.

(b) The air flow rate used for testing must be that set forth in the installation and operation manuals being shipped to the commercial customer with the basic model and clearly identified as that used to generate the DOE performance ratings. If a certified air flow value for testing is not clearly identified, a value of 400 standard cubic feet per minute (scfm) per ton shall be used.

*(6) Indoor airflow testing and adjustment.*

(i) When testing full-capacity cooling operation at the required external static pressure condition, the full-load indoor airflow rate must be within +/- 5 percent of the certified-rated airflow at full-capacity cooling operation. If the indoor airflow rate at the required minimum external pressure is outside the +/- 5 percent tolerance, the unit and/or test setup must be adjusted such that both the airflow and ESP are within the required tolerances. This process may include, but is not limited to, adjusting any adjustable motor sheaves, adjusting variable drive settings, or adjusting the code tester fan.

(ii) When testing other than full-capacity cooling operation using the full-load indoor airflow rate (e.g., full-load heating), the full-load indoor airflow rate must be within +/- 5 percent of the certified-rated full-load cooling airflow (without regard to the resulting external static pressure), unless the unit is designed to operate at a different airflow for cooling and

heating mode. If necessary, a test facility setup may be made in order to maintain air flow within the required tolerance; however, no adjustments to the unit under test may be made.

(7) *Condenser head pressure controls.* Condenser head pressure controls of commercial unitary air conditioners and commercial unitary heat pumps, if typically shipped with units of the basic model by the manufacturer or available as an option to the basic model, must be active during testing.

(8) *Standard CFM.* In the referenced sections of ANSI/AHRI 340/360-2007 for commercial unitary air conditioners and commercial unitary heat pumps, all instances of CFM refer to standard CFM (SCFM). Likewise, all references to airflow or air quantity refer to standard airflow and standard air quantity.

(9) *Capacity rating at part-load.* When testing commercial unitary air conditioners and commercial unitary heat pumps to determine EER for the part-load rating points (i.e. 75 percent load, 50 percent load, and 25 percent load), if the measured capacity expressed as a percent of full load capacity for a given part-load test is within three percent above or below the target part-load percentage, the EER calculated for the test may be used without any interpolation to determine IEER.

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